

### *Preconstruction Monitoring Requirements*

According to 10 CSR 10-6.060 (8), any new major stationary source or major modification to a stationary source that proposes to locate within an area that is classified as attainment or unclassifiable must obtain a Prevention of Significant Deterioration air construction permit prior to commencing construction. If it is determined that a facility is subject to the Prevention of Significant Deterioration requirements, any pollutant that exceeds the emissions thresholds contained within 40 CFR 52.21 (b)(40) becomes subject to review and will be required to submit an ambient air quality analysis to the permit granting authority.

Section 165(e)(2) of the Clean Air Act requires applicants to collect site specific preconstruction monitoring data for a period of one year in order to determine if the emissions from a new source or modification will result in adverse ambient impacts that could lead to violations of the National Ambient Air Quality Standards (NAAQS). The monitoring data that is collected will be used to establish the existing air quality concentrations within the region and should be used in conjunction with modeling results to determine if an area complies with all applicable regulations.

An applicant can receive an exemption from preconstruction monitoring requirements provided the ambient impact that results due to the emissions from the proposed project or modification are below the significant monitoring levels contained within Table 1.

<b>Table 1</b> <b>Preconstruction Monitoring</b> <b>Significant Impact Levels</b>		
<b>Pollutant</b>	<b>Averaging Period</b>	<b>Significant Monitoring Level</b>
		<b>(<math>\mu\text{g}/\text{m}^3</math>)</b>
Carbon Monoxide	8-Hour	575.0
Nitrogen Dioxide	Annual	14.0
Particulate Matter-2.5 Micron	*	*
Particulate Matter-10 Micron	24-Hour	10.0
Sulfur Dioxide	24-Hour	13.0
Ozone	*	*
Lead	3-Month	0.1
Mercury	24-Hour	0.25
Beryllium	24-Hour	0.001
Fluorides	24-Hour	0.25
Vinyl Chloride	24-Hour	15.0
Total Reduced Sulfur	1-Hour	10.0
Hydrogen Sulfide	1-Hour	0.2
Reduced Sulfur Compounds	1-Hour	10.0

*\* A significant monitoring level does not exist for ozone or particulate matter less than two and one-half microns. Any increase greater than 100 tons per year of volatile organic compounds or nitrogen dioxide triggers preconstruction data collection for ozone. Any increase greater than ten tons per year of particulate matter less than two and one-half microns triggers preconstruction data collection for this pollutant.*

If the applicant triggers preconstruction monitoring requirements, a site-specific monitoring network must be established and operated for a minimum of twelve consecutive months. The Department's Air



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Pollution Control Program will allow the applicant to submit the permit application after the completion of four months of data collection; however, the submittal of one complete year of data will be required prior to permit issuance.

With the exception of ozone, air quality modeling should be used to determine where the monitoring site(s) should be located. Every effort should be made to place monitors within the maximum impact area of the new source or modification or where the air quality model predicts re-occurring elevated impacts. Additional monitor sites may be necessary in multi-source regions where the impact of existing emission sources is unknown.

Ozone sites should be placed 15 to 20 miles from the source based upon the predominate wind direction. Unlike other criteria pollutants, ozone monitoring should only be conducted during the ozone season from April 1<sup>st</sup> through October 31<sup>st</sup>.

All preconstruction monitoring sites must be approved by the department's Air Pollution Control Program prior to the start of data collection efforts. This includes the submittal and approval of a Quality Assurance Project Plan; please refer to the air quality web site for information on the data elements that must be addressed within the plan: [Forms, Application and Permits - DNR](#).

In some instances, the department's Air Pollution Control Program may allow the use of existing air quality data. The use of a regional site can be considered provided the following criteria are met: the proposed site is in a rural area with little or no influence from existing sources of pollution, the facility is not locating in a multi-source, urban area where pollutant levels are unknown and the terrain is relatively flat, i.e. not complex (no bluffs, steep grades, valleys, etc.). Existing data can also be used in areas where monitoring data is available within the area of maximum impact. The decision to allow the use of a regional site must be made on a case by case basis and should rely upon the rules and regulations that govern the Prevention of Significant Deterioration program.

The determination of data representativeness can be complicated for pollutants that are formed due to chemical reactions/transformations within the atmosphere. For example, the State of Missouri has two active monitoring sites that measure nitrogen dioxide, a highly reactive pollutant. The sites are located in urban areas, St. Louis and Kansas City. It would be difficult for a rural facility to claim that the data collected within an urban area such as St. Louis or Kansas City is representative. The presence of existing volatile organic compounds and nitrogen dioxide sources, the season and daily meteorological conditions all play a role in the concentrations that are ultimately measured and will vary from urban areas to rural areas.

If a facility requests that an existing site be considered representative for preconstruction purposes, the applicant should provide a detailed description of the land use goals and characteristics for both the facility site and the monitor site. Additionally, the applicant must identify the area of maximum pollutant impact due to the proposed source(s) and existing sources. This will require the applicant to investigate the location and magnitude of existing sources of pollution. If the pollutant of concern is "regional" (ozone, particulate matter under two and one half microns), the applicant should investigate possible chemical reactions that could influence the ambient concentration that is measured. Lastly, the applicant should provide verification that the terrain in the vicinity of the source is simple and will not



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result in adverse conditions that could cause elevated pollutant impacts due to hill side impingement, blocking, valley flows, etc.